

DSA Patterns Identification Cheatsheet (Based on Keywords)

Binary Search

- Sorted
- Search
- Left/Right
- Logn
- Upper/Lower bound
- First/Last occurrence

Depth-First Search (DFS)

- Recursion
- Backtrack
- Tree/Graph
- Path
- Explore deeply

Sliding Window

- Subarray
- Contiguous
- Window size
- Max/Min in range
- Fixed/Variable window
- Consecutive elements

Two Pointers

- Left and Right
- Sorted array
- Remove duplicates
- Two in-place
- Opposite ends
- Meet in middle

Fast & Slow Pointers

- Cycle detection
- Mid/Middle
- Linked list
- Same/One
- Detect loop/start

Breadth-First Search (BFS)

- Queue
- Shortest path
- Tree/Graph
- Level order
- Traverse layers
- Neighbors

Backtracking

- Combination
- Permutation
- Subsets
- Palindrome
- Choices/Decisions
- Undo

Dynamic Programming

- Subproblem
- Memoization
- Tabulation
- Overlapping subproblems
- Optimal substructure
- State + transition
- Cache

Greedy

- Always best choice
- Locally optimal
- Interval

- Sorting
- Min/Max
- No future change

Hashing/Hash Table

- Frequency
- Set
- Collisions
- Constant time

Union Find (Disjoint Set)

- Connected components
- Groups
- Parent/Leader
- Path compression
- Merge sets
- Cycle detection

Topological Sort

- Directed acyclic graph
- Course schedule
- Dependency
- In-degree
- Order
- Build sequence

Trie

- Prefix
- Autocomplete
- Autocorrect
- Dictionary
- String search
- Character node

Heap / Priority Queue

- Top k
- Max/Min
- Extract
- Insert
- Dynamic median
- Scheduling